CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory
An ISO 9001:2015 Certified Company
NABL - Accredited Laboratory as per ISO / IEC-17025 : 2017

Job No.: CTCE/BBMP/KRIDL/W.No.14/CSR-41c/CEMENT/2019-20 Date: 21.02.2020

TEST REPORT ON CEMENT

* Customer	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvement to roads and drains at Mahalakshmi Layout in Ward No.14, Dasarahalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/WO/505/2019-20 Dated : 18.02.2020
* Sample ID	:	Cement
Sample Received on	:	19.02.2020
Period of Testing	:	19.02.2020 to 21.02.2020
Report Issue Date	:	21.02.2020

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 269:2015
1	Standard Consistency	IS-4031 (Part -4) : 1988 (RA-2019)	28.00 %	-
2	a) Initial Setting Time	IS-4031 (Part -5) : 1988 (RA-2019)	180 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5) : 1988 (RA-2019)	375 Minutes	Not More than 600 Minutes
3	Soundness by Le Chartlier Method	IS-4031 (Part-3) : 1988 (RA-2019)	1 mm	Not more than 10mm

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/KRIDL/W.No.14/Steel/2019-20 21.02.2020

TEST REPORT ON REINFORCEMENT STEEL

* Customer	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of work	:	Improvement to roads and drains at Mahalakshmi Layout in Ward No.14, Dasarahalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/WO/505/2019-20 Dated : 18.02.2020
* Samples ID	:	10 mm Bar
Test Method as per	:	IS - 1786 : 2008 (RA-2016)
Date of Testing	:	21.02.2020
Report Issue Date	:	21.02.2020

Sl No	Nominal size (dia) (mm)	Mass per metre (Kg/mtr)	TENSILE STRENGTH			Bend Test	Rebend Test
			0.20% proof stress/Yield stress N/mm2	Tensile strength (Ultimate stress) N/mm2	Elongation percent gauge length		
1	10	0.62	515	556	13.2	O.K	O.K

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JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/KRIDL/W.No.14/CSR-41c/Cube/2019-20 24.03.2020

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of the work	:	Improvement to roads and drains at Mahalakshmi Layout in Ward No.14, Dasarahalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/WO/505/2019-20 Dated : 18.02.2020
* Sample ID	:	RCC Drain Raft Concrete
Technical Reference	:	IS: 516-1959 (RA-2018)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{25}
Compressive Strength as on	:	28^{th} day
Sample Received on	:	24.03.2020
Report Issue Date	:	24.03.2020

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	25.02.2020	24.03.2020	8.125	615.4	27.35
2	25.02.2020	24.03.2020	8.211	620.5	27.58
3	25.02.2020	24.03.2020	8.169	635.4	28.24

*Information is furnished by the Customer/Representative.

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JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/KRIDL/W.No.14/CSR-41c/Cube/2019-20 26.03.2020

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of the work	:	Improvement to roads and drains at Mahalakshmi Layout in Ward No.14, Dasarahalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/WO/505/2019-20 Dated : 18.02.2020
* Sample ID	:	RCC Drain Side Wall Concrete
Technical Reference	:	IS: 516-1959 (RA-2018)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{25}
Compressive Strength as on	:	28^{th} day
Sample Received on	:	26.03.2020
Report Issue Date	:	26.03.2020

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	27.02.2020	26.03.2020	8.125	625.7	27.81
2	27.02.2020	26.03.2020	8.169	635.4	28.24
3	27.02.2020	26.03.2020	8.235	645.6	28.69

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JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/KRIDL/W.No.14/CSR-41c/Cube/2019-20 28.03.2020

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of the work	:	Improvement to roads and drains at Mahalakshmi Layout in Ward No.14, Dasarahalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/WO/505/2019-20 Dated : 18.02.2020
* Sample ID	:	RCC Drain Side Wall Concrete
Technical Reference	:	IS: 516-1959 (RA-2018)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{25}
Compressive Strength as on	:	28^{th} day
Sample Received on	:	28.03.2020
Report Issue Date	:	28.03.2020

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	29.02.2020	28.03.2020	8.127	602.5	26.78
2	29.02.2020	28.03.2020	8.253	613.2	27.25
3	29.02.2020	28.03.2020	8.349	620.4	27.57

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Job No.: CTCE/BBMP/KRIDL/W.No.14/CSR-41c/Cube/2020-21 01.04.2020

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of the work	:	Improvement to roads and drains at Mahalakshmi Layout in Ward No.14, Dasarahalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/WO/505/2019-20 Dated : 18.02.2020
* Sample ID	:	RCC Drain Side Wall Concrete
Technical Reference	:	IS: 516-1959 (RA-2018)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{25}
Compressive Strength as on	:	28^{th} day
Sample Received on	:	01.04.2020
Report Issue Date	:	01.04.2020

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	04.03.2020	01.04.2020	8.090	605.5	26.91
2	04.03.2020	01.04.2020	8.132	615.3	27.35
3	04.03.2020	01.04.2020	8.216	632.4	28.11

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Job No.: CTCE/BBMP/KRIDL/W.No.14/BC/AIV/2019-20 18.03.2020

TEST REPORT ON IMPACT VALUE OF AGGREGATES

* Customer	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvement to roads and drains at Mahalakshmi Layout in Ward No.14, Dasarahalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/WO/505/2019-20 Dated : 18.02.2020
* Sample ID	:	Hot mix plant, Bangalore.
* Type of Mix	:	Bituminous Concrete
Test Method as per	:	IS - 2386 (Part- 4) : 1963 (RA-2016)
Date of Testing	:	18.03.2020
Report Issue Date	:	18.03.2020

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	387	389	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	87	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	301	
4	Aggregate Impact value = percent fines 100* (W2/W1) percent	22.48	22.62	**22.55**

*Information is furnished by the Customer/Representative.

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Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Job No.: CTCE/BBMP/KRIDL/W.No.14/BC/Shape.T/2019-20 18.03.2020

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvement to roads and drains at Mahalakshmi Layout in Ward No.14, Dasarahalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/WO/505/2019-20 Dated : 18.02.2020
* Sample ID	:	Hot mix plant, Bangalore
Test Method as per	:	IS - 2386(Part -1) : 1963 (RA-2016)
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	18.03.2020
Report Issue Date	:	18.03.2020

Sl.No.	Description	Result
1	Flakiness Index	11.21%
2	Elongation Index	12.60%
3	Combined Flakiness & Elongation Index	23.81%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Concrete is 35%

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Job No.: CTCE/BBMP/KRIDL/W.No.14/BC/Bitumen/2019-20 20.03.2020

TEST REPORT ON BITUMEN CONTENT OF BITUMINOUS CONCRETE MIX

* Customer	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvement to roads and drains at Mahalakshmi Layout in Ward No.14, Dasarahalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/WO/505/2019-20 Dated : 18.02.2020
* Sample ID	:	Roads in Mahalakshminagara, Ward No.14, Bagalagunte.
Test Method as per	:	IRC:SP:11-1984
Date of Testing	:	20.03.2020
Report Issue Date	:	20.03.2020

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	470	469
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	30.00	31.00
7. Bitumen content in %	6.00	6.20
8. Average	**6.10**	

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Job No.: CTCE/BBMP/KRIDL/W.No.14/BC/Agg/2019-20 20.03.2020

TEST REPORT ON GRADATION OF AGGREGATE

* Customer	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvement to roads and drains at Mahalakshmi Layout in Ward No.14, Dasarahalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/WO/505/2019-20 Dated : 18.02.2020
* Sample ID	:	Bituminous Concrete
Test Method as per	:	IS - 2386(Part -1) : 1963 (RA-2016)
* Type of Mix	:	Hot mix plant, Bangalore
Date of Testing	:	20.03.2020
Report Issue Date	:	20.03.2020

Total Weight of Sample: **5100** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per `MORTH 500-17
13.2	400	7.84	7.84	92.16	90 - 100	
9.5	535	10.49	18.33	81.67	70 - 88	
4.75	695	13.63	31.96	68.04	53 - 71	
2.36	635	12.45	44.41	55.59	42 - 58	
1.18	520	10.20	54.61	45.39	34 - 48	
0.600	540	10.59	65.20	34.80	26 - 38	
0.300	590	11.57	76.76	23.24	18 - 28	
0.150	370	7.25	84.02	15.98	12 - 20	
0.075	425	8.33	92.35	7.65	4 - 10	

Total Weight of Sample: **5150** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH 500-17
13.2	385	7.48	7.48	92.52	90 - 100	
9.5	540	10.49	17.96	82.04	70 - 88	
4.75	735	14.27	32.23	67.77	53 - 71	
2.36	620	12.04	44.27	55.73	42 - 58	
1.18	635	12.33	56.60	43.40	34 - 48	
0.600	525	10.19	66.80	33.20	26 - 38	
0.300	555	10.78	77.57	22.43	18 - 28	
0.150	395	7.67	85.24	14.76	12 - 20	
0.075	495	9.61	94.85	5.15	4 - 10	

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